THE COLEOPTERISTS' BULLETIN

VOLUME 21 SEPTEMBER 1967 NO. 3

ANTROFORCEPS, AN EYELESS CAVE SCARITINE FROM MEXICO (COLEOPTERA: CARABIDAE)[1]

THOMAS C. BARR, JR.[2,3]

The large and widely distributed carabid tribe Scaritini has produced few cavernicolous species. In the temperate zone of North America scaritines are rare in caves even as accidentals I. Move (Barr, 1964), and Jeannel (1926) recorded no species of this tribe from caves of France. Leleup (1956) records only four species of scaritines in his collections of beetles in caves of the Congo, and all of these were reported as having been taken in the bottom of sinkholes or at cave entrances. Recently I have taken a few specimens of *Dyschirius* in Kentucky caves, and several species of *Clivina, Ardistomis,* and even *Schizogenius* have been collected in caves of Texas and Mexico by Mr. James R. Reddell. All of these scaritines apparently belong to normally epigean species found in the bottom of sinkholes or washed a relatively short distance into the caves by sinking streams.

The eyeless or microphthalmous scaritines of the genus *Reicheia* are small humicoles which appear to have originated in east-central Africa (Leleup, 1956) and dispersed southward to the Cape and northward to the Mediterranean region. The two known troglobites referable to the Scaritini—*Spelaeodytes mirabilis* (Miller, 1863) from an unspecified cave in Herzegowina and *Italodytes stammeri* (Müller, 1938) from a cave in Italy—are possibly relicts of one or two *Reicheia*-like ancestors (Jeannel, 1943: pp. 184-185). Both are extremely rare, *S. mirabilis* being known from a single specimen of uncertain provenance.

In November, 1966, Orion Knox, Jr., and Edward Alexander collected a small scaritine in the lower levels of the Sótano de la Joya de Salas, Tamaulipas, Mexico, incidental to exploration of the cave. The cave was reported to be considerably wetter than on previous visits made by these explorers and their associates. Mr. Reddell gave me the specimen for determination. The complete absence of eyes, the rufotestaceous integument, and the notable elongation of appendages indicate that this beetle is a troglobite, but it is somewhat larger and of a completely different habitus when compared with *Spelaeodytes, Italodytes,* and *Reicheia,* to which it almost certainly bears no very close relationship.

The known troglobitic carabids of Mexico are not numerous. *Mexaphaenops prietoi* (Bolívar, 1943) is a troglobitic trechine belonging to the *Paratrechus*

---

[1]This investigation was supported, in part, by a grant from the National Science Foundation (GB-5521).

[2]Department of Zoology, University of Kentucky, Lexington, Kentucky 40506.

[3]*Acknowledgments:* I wish to express my appreciation to Orion Knox, Jr., Edward Alexander, and James Reddell, for making available the specimen described in this paper; to P. J. Darlington, Jr., for loan of specimens of *Forcipator grandis* Perty, *F. cylindricus* Dejean, *Camptodontus crenatus* Brullé, and *Clivina forcipata* Putzeys from the Harvard University Museum of Comparative Zoology; and to Dr. Darlington and Mr. Donald R. Whitehead for other assistance in preparation of this paper.

series; it is known only from a single cave in Nuevo Leon. Three related troglobitic trechines from San Luis Potosí and Querétaro have recently come to my attention and will be described elsewhere. The recently discovered genus of cavernicolous anchomenines, *Mexisphodrus* (Barr, 1965, 1966; Hendrichs and Bolívar, 1966), includes 7 or more known species of which at least 5 are probable troglobites—*M. veraecrucis* from Veracruz, *M. profundus* from the Sótano de la Joya de Salas, and undescribed species from San Luis Potosí, Querétaro, and Oaxaca. Carabid troglobites, in common with troglobites of a number of other terrestrial arthropod groups in Mexico, occur predominantly in caves at elevations of about 1500 meters or higher.

Antroforceps Barr, NEW GENUS

Size moderately small (6.5 mm); elongate-subparallel, subconvex, integument rufotestaceous. Antenna with scape and pedicel subequal in length, pubescence beginning on 3rd segment. Eyes completely absent. Labrum with 5 setae on anterior margin; clypeus and frons fused, with no trace of a suture; frons with deep, wide, canaliculate grooves extending onto clypeus and occiput; one pair of clypeal setae and 2 pairs of supraorbital setae in the grooves. Mandibles slender, porrect, subfalcate; last segment of maxillary and labial palps fusiform, with apex produced, finely subtruncate; lacinia with apex acute; glossa elongate-triangular, bisetose, subequal in length to paraglossae; mentum tooth broad and spatulate, longer than lateral lobes. Pronotum elongate-subparallel, margins narrow and crenulate; 2 pairs of submarginal punctures; disc with a pair of antebasal, paramedian tubercles. Elytra convex, margins narrow and crenulate; disc with fine longitudinal striae, the 8th carinate at humerus and near apex, apically truncating all other striae except the sutural, scutellar stria absent; dorsolateral margin of last visible abdominal sternite without a rounded projection which fits between elytral plica and epipleuron; 3rd interval with 7-8 setiferous punctures near 3rd stria, each elytron with a non-setiferous scutellar puncture on a raised tubercle at base of 2nd and 3rd striae, umbilicate series uninterrupted and consisting of numerous punctures with short, irregular setae. Profemur only 1¼ times as wide as mesofemur; protibia "palmate," with 4 external spurs increasing in length toward apex; mesotibia with external subapical spur; metatibia arcuate; first tarsal segment longer than distal 4 segments combined; segments 2, 3, and 4 of pro- and mesotarsus transverse. TYPE SPECIES: *A. bolivari* Barr, new species.

Antroforceps bolivari Barr, NEW SPECIES

Figure 1

Length 6.5 mm. Elongate, subparallel, rufotestaceous; microsculpture uniformly isodiametric.

Head. Subquadrate, about as long as wide. Labrum with anterior margin convex, feebly umbonate, bearing 5 stiff setae on the margin—the seta at each corner very long—and 4 or 5 curved bristles at each corner. Clypeus weakly bisinuate, with a lateral tooth medial to each wing; clypeofrontal suture obsolete; one pair of clypeal setae. Frontal lobes rounded and prominent; frontal grooves deep, wide, and canaliculate, extending forward onto clypeus and backward onto occiput; 2 pairs of supraorbital setae placed far back, in occipital portion of these grooves; disc of frons between grooves smooth, feebly convex, glabrous; a narrow, carinate ridge forming outer wall of grooves in occipital region and separating them from genae; posterior region of fronto-occipital plate slightly but prominent-

ly elevated above neck. Eyes completely absent, sides of head beneath frontal lobes sunken; genae broadly expanded, anteriorly produced into a salient, flattened, triangular, postorbital tubercle on each side, with a second, much smaller tubercle behind. Head conspicuously constricted behind genae, neck less than 3/5 as wide as head measured across postorbital tubercles.

Thorax. Pronotum elongate-subparallel, 1¼ times as long as wide, disc feebly convex and glabrous; anterior angles prominent, anterior margin feebly convex; lateral margins narrow, beaded, irregularly crenulate in apical ⅔, with 2 prominent teeth near base; disc with a pair of small tubercles, one either side of mid-line near base; base not evidently margined before the peduncle; 2 pairs of marginal punctures which are not setiferous. Prosternum carinate in apical half; intercoxal process obliquely truncate, triangular, basolaterally forming a small tubercle at each side. Metepisternum 3 times as long as wide. Meso- and metacoxal cavities slightly separated.

Elytra. Elongate-elliptical, 1.9 times as long as wide (combined width), convex, disc medially deplanate over intervals 1-3 in basal ⅔; marginal bead distinctly and prominently crenulate, more strongly so than in pronotum; longitudinal striae fairly regular and well defined, especially inner 3 in area of deplanation; striae 4-7 feebly impressed and evanescently punctulate; 8th stria carinate, especially at humerus where it forms a prominent basal tubercle, and near apex, where it truncates all other striae except the sutural; 7-8 discal punctures on 3rd interval near 3rd stria; umbilicate series uninterrupted, with numerous punctures bearing short, irregular setae; scutellum not visible in the unique holotype; scutellar stria absent, although scutellar punctures, which are not setiferous, present on paramedian tubercles at base of 2nd and 3rd striae; epipleura without a subapical groove for reception of process from 6th sternite.

Mouthparts. Mandibles large, porrect, flattened, slender, subfalcate, 5/6 as long as head, terebra attenuate and gently curved inward, retinaculum with a small; broad tooth. Maxillary palps, labial palps, galea, and lacinia all elongate and slender; last segment of palps elongate-fusiform and produced at apex, very finely truncate; maxillary palps with last segment 2.6 times as long as penultimate; labial palps with last segment 1.6 times as long as penultimate segment, which is bisetose; lacinia sharply pointed and curved inward at apex, with a series of stout setae on inner margin. Glossa short, elongate-triangular in form, more or less acute at apex, bisetose; paraglossae slender and subequal in length to glossa. Mentum separated from submentum by a typical scaritine suture, slightly opened either side of midline, sensory organs readily visible through integument but not forming pits; mentum with a prominent, spatulate, broadly rounded tooth a little longer than lateral lobes, and with a median carina; one seta each side of carina near base of tooth, one seta at each side of mentum just anterior of suture, and one seta each side of submentum near its base. Gula narrow, 0.15-0.25 times as wide as mentum.

Antenna. Three-fifths as long as body; scape with a single subapical seta, pedicel plurisetose in apical half, articles 3-11 densely pubescent; scape about as long as pedicel, articles 2-10 elongate-subconical, article 11 elongate-fusiform.

Wings. Functional metathoracic wings absent.

Legs. All legs unusually elongate and slender. Protrochanter with a small tubercle at outer side of apex. Profemur not prominently enlarged as usual in scaritines, only 1¼ times as wide as mesofemur; protibia broad as usual,

"palmate," with 4 external spines, apical spine longer than first tarsal segment, other spines decreasing in length toward base of tibia; apical and subapical spurs of moderate length, subequal. First segment of all tarsi longer than outer 4 segments combined; segments 2-4 of pro- and mesotarsi transverse, of metatarsi about as long as wide; segment 5 of all tarsi longer than wide; arolium flat, prominent, paddle-shaped; an arolium-like process arising each side of unguis, also flat and paddle-shaped. Mesotibia with a prominent, external, subapical apophysis and 2 inner apical spurs; numerous long setae on apical half. Metatibia slender, elongate, conspicuously arcuate, less than 0.4 as long as elytra, with 2 apical spurs and 8-9 long setae in apical half.

Figure 1. *Antroforceps bolivari* Barr, n. gen. and sp., holotype female, Sotano de la Joya de Salas, Tamaulipas, Mexico. Actual length 6.5 mm.

Abdomen. A pair of paramedian ambulatory setae on sternites 3-6 (female); 2 pairs of apical marginal setae on sternite 6 (female); a feebly impressed, transverse paralateral stria on sternites 4-6.

Male unknown.

Holotype female: total length 6.5 mm, head 0.99 mm long x 1.09 mm wide, pronotum 1.48 mm long x 1.22 mm wide, elytra 3.46 mm long x 1.82 mm wide (combined width), antenna 3.7 mm long, metatibia 1.32 mm long.

Type locality: Sótano de la Joya de Salas, elevation ca. 1600 meters, 25 kilometers west of Encino, Tamaulipas, Mexico, 28 November 1966, Orion Knox, Jr., and Edward Alexander, leg. Type deposited in Museum of Comparative Zoology, Harvard University.

It is a pleasure to name this remarkable species in honor of Dr. Candido Bolívar y Pieltain, Escuela de Ciencias Biológicas, Instituto Politechnico Nacional, México, D. F., a pioneer in the study of the cavernicolous Coleoptera of Mexico.

Discussion

The affinities of *Antroforceps* lie, in my opinion, with the scaritines of the subtribe Forcipatorina (= Oxystomina auct.). Five other genera of forcipatorines are known. *Oxygnathus* Dejean occurs in Bengal, Assam, and Burma. *Forcipator* Maindron *(Oxystomus* Latreille), *Stratiotes* Putzeys, *Camptodontus* Dejean, and *Camptidius* Putzeys are predominantly South American, although *Stratiotes iracunda* Putz. is recorded from Dominica and Martinique (Blackwelder, 1944), and *Camptodontus isthmius* Bates (1881: p. 30) was described from Panama. In this subtribe the genae are widely expanded behind the orbit, imparting a subquadrate appearance to the head, the clypeus is fused to the frons, and the mandibles are elongate and falciform.

Antroforceps differs from these five genera in absence of eyes, in having 5 setae on the anterior margin of the labrum, in the broadly sulcate head grooves, in the broader and flatter mandibles, in the crenulate margins of the pronotum and elytra, and in the generally slender and elongate antennae, mouthparts, and legs. Postorbital genal tubercles of the same shape and relative size as those of *Antroforceps* occur in *Forcipator,* in which the eyes are quite small and partly sunken into their orbits. The broadly sulcate head grooves of *Antroforceps* are probably derived by basal fusion of the frontal grooves with the grooves which separate the dorsum of the head from the genae and in which the supraorbital setae are placed. *Antroforceps* and *Oxygnathus* share elongate first tarsal segments and short 2nd, 3rd, and 4th segments as well as the subcarinate 8th elytral stria. The long exterior setae of the anterior margin of the labrum may be homologous with the 2 peripheral setae in *Oxygnathus,* in which the labrum is deeply emarginate. *Oxygnathus elongatus* Wiedemann has 6 setiferous punctures on the 3rd interval (Andrewes, 1929: pp. 341-342), while in *Antroforceps* there are 7 or 8. The prominent tuberculate scutellar puncture in *Antroforceps* has a possible precursor in *Camptodontus,* where the tubercle is very small and closer to the mid-line.

Antroforceps appears to be a most interesting relict, perhaps an archaic one. The present distribution of the Forcipatorina suggests colonization of South America in the early Tertiary, development of endemic South American genera during the subsequent long period of isolation, and virtual extinction of presumed geographical intermediates in eastern Asia, western North America,

Mexico, and Central America. By this interpretation *Antroforceps* is the only known surviving representative of a phyletic line of scaritines otherwise extinct in North America north of Panama.

References Cited

Andrews, H. E. 1929. The fauna of British India, including Ceylon and Burma. Coleoptera. Carabidae. Vol. I—Carabinae. Taylor and Francis, London. 431 p., 9 pl.

Barr, Thomas C., Jr. 1964. Non-troglobitic Carabidae (Coleoptera) from caves in the United States. Coleopt. Bull., 18: 1-4.

——— 1965. A new cavernicolous sphodrine from Veracruz, Mexico (Coleoptera: Carabidae). Ibid., 19: 65-72.

——— 1966. New species of *Mexisphodrus* from Mexican caves (Coleoptera: Carabidae). Psyche, 73: 112-115.

Bates, Henry W. 1881. Biologia Centrali-Americana; Insecta, Coleoptera. Vol. I, part 1. Taylor and Francis, London. 316 p., 13 pl.

Blackwelder, Richard E. 1944. Checklist of the coleopterous insects of Mexico, Central America, the West Indies, and South America. United States Nat. Mus., Bull. 185, part 1: 1-188.

Bolivar y Pieltain, Candido. 1943. Estudio del primer Trechinae ciego hallado en cavernas de Mexico (Col. Carab.). Ciencia, 3: 349-354.

Hendrichs, Jorge, and C. Bolivar y Pieltain. 1966. Hallazgo de un nuevo *Mexisphodrus* en el estado de Hidalgo (Mexico): *M. gertschi* nov. sp. Ibid., 25: 7-10, 1 pl.

Jeannel, Rene. 1926. Faune cavernicole de la France, avec une étude des conditions d'existence dans le domaine souterrain. Encyclop. Entomol., vol. 7. P. Lechevalier, Paris. 334 p.

Leleup, N. 1956. La faune cavernicole du Congo Belge et considérations sur les coléoptères réliques d'Afrique intértropicale. Ann. Mus. Roy. Congo Belge (Tervuren, Belgium), 46: 1-171, 5 pl.

Miller, Ludwig. 1863. Ein neuer Grottenkäfer aus der Gruppe der Scaritiden. Wiener Entomol. Monatsschr., 7: 28-30, pl. I, fig. 15.

Muller, Giuseppe. 1938. *Italodytes stammeri,* nuovo genere e nuova specie di carabidi cavernicoli dell' Italia meridionale. Atti Mus. Civ. Storia Natur. Trieste, 13: 135-139, pl. 10, 11.